



## Datasheet

# RS PRO CB Series Epoxy-coated Solid Electrolytic Tantalum Capacitor

EN



Article No.	Product description	Uf	Voltage	Pitch	Tolerance
1814615	Tantalum Capacitors dipped type	10	50	5.0	20
1814613	Tantalum Capacitors dipped type	6.8	50	5.0	20
1814612	Tantalum Capacitors dipped type	4.7	50	2.5	20
1814611	Tantalum Capacitors dipped type	3.3	50	2.5	20
1814610	Tantalum Capacitors dipped type	2.2	50	2.5	20
1814609	Tantalum Capacitors dipped type	1.5	50	2.5	20
1814607	Tantalum Capacitors dipped type	1	50	2.5	20
1814606	Tantalum Capacitors dipped type	0.7	50	2.5	20
1814605	Tantalum Capacitors dipped type	0.5	50	2.5	20
1814604	Tantalum Capacitors dipped type	0.3	50	2.5	20
1814603	Tantalum Capacitors dipped type	0.2	50	2.5	20
1814602	Tantalum Capacitors dipped type	0.1	50	2.5	20
1814601	Tantalum Capacitors dipped type	47	35	5.0	20
1814600	Tantalum Capacitors dipped type	33	35	5.0	20
1814599	Tantalum Capacitors dipped type	22	35	5.0	20
1814598	Tantalum Capacitors dipped type	15	35	5.0	20
1814597	Tantalum Capacitors dipped type	10	35	2.5	20
1814596	Tantalum Capacitors dipped type	6.8	35	2.5	20
1814595	Tantalum Capacitors dipped type	4.7	35	2.5	20
1814594	Tantalum Capacitors dipped type	3.3	35	2.5	20
1814593	Tantalum Capacitors dipped type	2.2	35	2.5	20
1814592	Tantalum Capacitors dipped type	1.5	35	2.5	20
1814590	Tantalum Capacitors dipped type	1	35	2.5	20
1814589	Tantalum Capacitors dipped type	0.7	35	2.5	20
1814588	Tantalum Capacitors dipped type	0.5	35	2.5	20
1814587	Tantalum Capacitors dipped type	0.3	35	2.5	20
1814586	Tantalum Capacitors dipped type	0.2	35	2.5	20
1814584	Tantalum Capacitors dipped type	0.2	35	2.5	20
1814583	Tantalum Capacitors dipped type	0.1	35	2.5	20
1814582	Tantalum Capacitors dipped type	100	25	5.0	20
1814581	Tantalum Capacitors dipped type	68	25	5.0	20
1814580	Tantalum Capacitors dipped type	47	25	5.0	20
1814578	Tantalum Capacitors dipped type	33	25	5.0	20
1814577	Tantalum Capacitors dipped type	22	25	2.5	20
1814576	Tantalum Capacitors dipped type	15	25	2.5	20
1814575	Tantalum Capacitors dipped type	10	25	2.5	20
1814574	Tantalum Capacitors dipped type	6.8	25	2.5	20

Article No.	Product description	Uf	Voltage	Pitch	Tolerance
1814573	Tantalum Capacitors dipped type	4.7	25	2.5	20
1814572	Tantalum Capacitors dipped type	3.3	25	2.5	20
1814571	Tantalum Capacitors dipped type	2.2	25	2.5	20
1814570	Tantalum Capacitors dipped type	1.5	25	2.5	20
1814569	Tantalum Capacitors dipped type	1	25	2.5	20
1814568	Tantalum Capacitors dipped type	150	16	5.0	20
1814567	Tantalum Capacitors dipped type	100	16	5.0	20
1814566	Tantalum Capacitors dipped type	68	16	5.0	20
1814565	Tantalum Capacitors dipped type	47	16	2.5	20
1814564	Tantalum Capacitors dipped type	33	16	2.5	20
1814562	Tantalum Capacitors dipped type	22	16	2.5	20
1814561	Tantalum Capacitors dipped type	15	16	2.5	20
1814560	Tantalum Capacitors dipped type	10	16	2.5	20
1814559	Tantalum Capacitors dipped type	6.8	16	2.5	20
1814558	Tantalum Capacitors dipped type	4.7	16	2.5	20
1814556	Tantalum Capacitors dipped type	3.3	16	2.5	20
1814555	Tantalum Capacitors dipped type	2.2	16	2.5	20
1814554	Tantalum Capacitors dipped type	220	10	5.0	20
1814553	Tantalum Capacitors dipped type	150	10	5.0	20
1814552	Tantalum Capacitors dipped type	100	10	5.0	20
1814551	Tantalum Capacitors dipped type	68	10	2.5	20
1814550	Tantalum Capacitors dipped type	47	10	2.5	20
1814549	Tantalum Capacitors dipped type	33	10	2.5	20
1814548	Tantalum Capacitors dipped type	22	10	2.5	20
1814547	Tantalum Capacitors dipped type	15	10	2.5	20
1814546	Tantalum Capacitors dipped type	10	10	2.5	20
1814545	Tantalum Capacitors dipped type	6.8	10	2.5	20
1814544	Tantalum Capacitors dipped type	4.7	10	2.5	20
1814543	Tantalum Capacitors dipped type	220	6.3	5.0	20
1814542	Tantalum Capacitors dipped type	150	6.3	5.0	20
1814540	Tantalum Capacitors dipped type	100	6.3	5.0	20
1814539	Tantalum Capacitors dipped type	68	6.3	2.5	20
1814538	Tantalum Capacitors dipped type	47	6.3	2.5	20
1814537	Tantalum Capacitors dipped type	33	6.3	2.5	20
1814536	Tantalum Capacitors dipped type	22	6.3	2.5	20
1814534	Tantalum Capacitors dipped type	15	6.3	2.5	20
1814533	Tantalum Capacitors dipped type	10	6.3	2.5	20

Article No.	Product description	Uf	Voltage	Pitch	Tolerance
1814532	Tantalum Capacitors dipped type	6.8	6.3	2.5	20
1814531	Tantalum Capacitors dipped type	4.7	6.3	2.5	20

## 1. Technical Specification

table I

Nominal cap. Range	0.047~680 $\mu$ F								
capacitance tolerance	$\pm 20\%$ $\pm 10\%$ $\pm 5\%$ (Special order)								
(V) Rated voltage	3	4	6.3	10	16	20	25	35	50
(V) Derating Voltage $\leq +125^{\circ}\text{C}$	2	2.5	4	6.3	10	13	16	20	32
(V) Surge voltage $\leq +85^{\circ}\text{C}$	4	5.2	8	13	20	26	33	46	65
Temperature range	$-55^{\circ}\text{C} \sim +125^{\circ}\text{C}$								
Leakage Current (DCL)	$0.01C_R V_R$ or $0.5\mu\text{A}$ (whichever is greater)								
Dissipation Factor (DF)	$\leq 1.0\mu\text{F} : \leq 0.04$ $1.5 \sim 6.8\mu\text{F} : \leq 0.06$ $10 \sim 68\mu\text{F} : \leq 0.08$ $100 \sim 680\mu\text{F} : \leq 0.1$								
The life test	1000Hr								

Note : 1. Leakage Current test condition: Series protective resistor:  $1000\Omega$  , Measuring voltage: rated voltage , Measuring time : 1 minutes

2. Capacitance, Dissipation Factor test condition: Measurement circuit: Equivalent series circuit , Measuring frequency :  $120\text{Hz} \pm 10\%$  , Measuring voltage max. :  $0.5V_{\text{rms}}, +1.5V_{\text{dc}}$ .

## 2. Temperature Characteristic

Table II

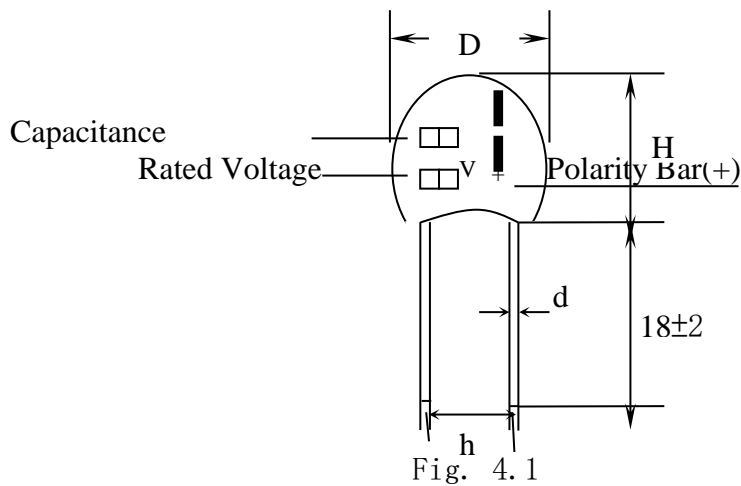
Cap. ( $\mu\text{F}$ )	Change in cap. (%)			DF max. (%)				DCL max. ( $\mu\text{A}$ )		
	$-55^{\circ}\text{C}$	$+85^{\circ}\text{C}$	$+125^{\circ}\text{C}$	$-55^{\circ}\text{C}$	$+20^{\circ}\text{C}$	$+85^{\circ}\text{C}$	$+125^{\circ}\text{C}$	$+20^{\circ}\text{C}$	$+85^{\circ}\text{C}$	$+125^{\circ}\text{C}$
$\leq 1.0$	$\pm 10$	$\pm 15$	$\pm 25$	6	4	6	6	$I_o = 0.01C_R V_R$ $0.5\mu\text{A}$ ( whichever is greater)	$10I_o$	$12.5I_o$
1.5~6.8				8	6	8	8			
10~68				10	8	10	10			
100~680				12	10	12	12			

### 3. Appearance & Dimensions

#### 4.1 Appearance & Dimensions (Fig. 4.1)

**Table III**  
(unit : mm)

case size	D <sub>MAX.</sub>	H <sub>MAX.</sub>	h(±0.5mm)	d(±0.05mm)
A	4.5	7.0	2.5	0.5
B	5.0	8.0	2.5	0.5
C	5.5	9.5	2.5	0.5
D	6.5	11.0	2.5	0.5
E	8.5	13.0	5.0	0.5
F	9.5	16.5	5.0	0.5



(other lead styles are available)

### 4. Marking

Fig. 4.1 , capacitance, DC voltage and polarity are laser marked on the capacitor body.

## 5. The Range of the Capacitance and Case

( letter expresses case ) table IV

capacitance ( $\mu\text{F}$ )	Rated voltage								
	3 V	4V	6.3 V	10 V	16V	20V	25V	35V	50V
0.1								A	A
0.15								A	A
0.22								A	A
0.33								A	A
0.47								A	A
0.68								A	A
1.0					A	A	A	A	B
1.5					A	A	A	A	C
2.2				A	A	A	A	B	C
3.3			A	A	A	B	B	B	D
4.7	A	A	A	A	B	B	B	C	D
6.8	A	A	A	B	B	C	C	D	E
10	A	A	B	B	B	C	C	D	E
15	A	A	B	C	C	D	D	E	F
22	B	B	C	C	C	D	D	E	F
33	B	B	C	D	D	E	E	F	
47	C	C	D	D	D	E	E	F	
68	D	D	D	D	E	F	F		
100	D	D	E	E	E	F	F		
150	D	E	E	E	F				
220	E	E	E	F					
330	E	F	F						
470	F								
680	F								

## 6. Reliable Performance

Items	Performance Characteristics		Conditions of test	
(1) Characteristics at high and low temperature	Step	Performance characteristics	Step    Temperature    Duration	
	2	Change in cap.	See table II	1:    +20±2    —
		Dissipation Factor(DF)		2:    -55±3    30min
	3	Change in cap.		3:    +85±2    30min
		Dissipation Factor(DF)		4:    +125±2    30min
		Leakage current		
	4	Change in cap.		
		Dissipation Factor(DF)		
		Leakage current		
	(2) Surge test	Change in cap.		Relative to the Value before test ±10%
Dissipation Factor (DF)		See table II DF max		
Leakage current		See table II DCL max		
Appearance		There shall be no such mechanical damage		
(3) Resistance to soldering heat	Appearance	No visible damage The marking shall be legible.	Test method Solder temperature: 260±5°C Dip duration : 5±0.5s	
(4) Solderability	A new uniform coating of solder shall cover the surface being immersed		Test method Solder temperature: 235±5°C Dip duration: 2±0.5s	

(5) Vibration	Appearance	No visible damage	The entire frequency range: 10 to 55Hz Amplitude: 0.35mm Duration: 3×0.5h
(6) Damp heat	Change in cap.	±12% Relative to value before test ±12%	Test temp: 40±2°C Humidity: 90-95%R.H Test time: 10天10 days  No voltage applied Recovery: 1-2h
	Dissipation Factor (DF)	See table II DF max	
	Leakage current	See table II DCL max	
	Appearance	No visible damage The marking shall be legible	
(7) Electrical endurance	Change in cap.	±10% Relative to value before test ±10%	1. Test temp: 85°C±2°C Test time: 1000 hours Voltage: Rated voltage 2. Test temp: 125°C±2°C Test time: 1000 hours Voltage: Derated voltage Recovery: 16h  (R.V.) Measuring voltage: (D.V.) Derated voltage]
	Dissipation Factor(DF)	See table II DF max	
	Leakage current	×1.25 See table II DCL max×1.25	
	Appearance	No visible damage The marking shall be legible	